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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,201	10/06/2005	Wei Huang	7035812001-3221000	5242

7590 07/16/2008

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EXAMINER	
YOON, TAE H	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
07/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/518,201	HUANG ET AL.	
	Examiner	Art Unit	
	Tae H. Yoon	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/15/05, 11/19/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Careful corrections of on specification and claims are suggested since many words have unnecessary spaces in them. For example, see "a s tructural" in line 15 of page 3, "P articularly" in line 1 of page 12, "m ethyl e ther a cetate" in line 26 of page 21, and "the s olvent sy stem c omprises a t" in claim 4. There are too many to point them out.

Submission of an abstract on a single page is needed since it is unclear whether the abstract of the instant WO would meet the US requirement or not.

Updated PCT information in the beginning of specification is needed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 11-14, 16, 17, 24, 25, 38, 41, 45, 46, 48, 49, 51, 52, 57, 59, 67-70 and 73-76 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recited "type" in claims 3, 16, 17, 24, 25, 38, 51, 52, 59, 73 and 74 is indefinite and deletion is suggested since such word is not permitted in claims.

Claims 11-14, 45, 46, 48, 49 and 67-70 recites "at least about" which is indefinite since said at least is based on a definite value, but said about is not. Also, "less than about" in claims 75-76 is indefinite since said less than is based on a definite value, but said about is not. See Amgen, Ins. V. Chugal Pharmaceutical Co., Ltd., 18 USPQ 2d 1016 (Fed. Cir. 1991).

The recited "the alcohol-based solvent" in claim 41 lacks antecedent basis in claim 38.

The recited polydispersity for the recited composition (which is a solution) in claims 57, 75 and 76 is incorrect and indefinite since said polydispersity (Mw/Mn) is related to polymers, not to a solution (Also, see instant page 13).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5, 7-17, 26-35, 57-61 and 64-76 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,723,780. Although the conflicting claims are not identical, they are not patentably distinct from each other because a polymeric solution of said patent inherently possesses lowered forces since the same components (polymer and solvent)

are used and since the recited at least one solvent in claim 7 of said patent encompasses two solvents and ethyl acetate of said claim 7 is an alcohol-based solvent (derived from ethyl alcohol as one of reactants).

Claims 1-5, 7-17, 26-35, 57-61 and 64-76 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,506,831. Although the conflicting claims are not identical, they are not patentably distinct from each other because a polymeric solution of said patent inherently possesses lowered forces since the same components (polymer and solvent) are used and since the recited at least one solvent in claim 3 of said patent encompasses two solvents and ethyl acetate of said claim 7 is an alcohol-based solvent (derived from ethyl alcohol as one of reactants).

Claims 26-40 and 42-56 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,506,441. Although the conflicting claims are not identical, they are not patentably distinct from each other because a polymeric solution of said patent inherently possesses lowered forces since the same components (polymer and solvent) are used and since the recited at least one solvent in claim 3 of said patent encompasses two solvents and ethyl acetate of said claim 7 is an alcohol-based solvent (derived from ethyl alcohol as one of reactants).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 8-17, 26-29, 32-40, 43-55, 57-62 and 64-76 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547).

Drage teaches the instant photoresist solution and method of using thereof in examples and at col. 3, lines 24-36 and col. 5, lines 48-65. Said solution inherently lowers the recited forces since the same components are used. Integrated circuit structure taught at col. 3, lines 26-27 has a multi-layered structure and thus would meet the instantly recited additional layer as well as substrate absent further limitation. Various novolac polymers are taught at col. 4, and the novolac polymer with 750 amu in example 1 would have a polydispersity of 1 inherently since 750 amu would be an

absolute molecular weight since it is a point among the disclosed 200-1200 amu (col. 4, lines 7-8).

Thus, the instant invention lacks novelty.

Claims 1-21, 23-55, 57-62 and 64-76 are rejected under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547).

The instant invention further recites employing a mixture of solvents comprising propanol over Drage. However, Drage teaches said solvents and mixtures thereof at col. 5, lines 4-25.

It would have been obvious to one skilled in the art at the time of invention to employ propanol with other solvent in Drage since Drage teaches such modification absent showing otherwise.

Claims 1-5, 7-17, 26-29, 32-40, 42-55, 57-61 and 63-75 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rahman et al (US 5,928,836).

Rahman et al teach the instant solution composition and method of making layered product thereof in tables 8-13 wherein use of a fractionated novolac resin having the instant polydispersity such as 1.8 and 1.9, solvents and a surfactant is taught. Said solvents are alcohol-based since the instant alcohol-based encompasses derivatives of an alcohol. Said solution inherently lowers the recited forces since the same components are used. Surfactants are known to have some hydrocarbon residue

and the instant hydrocarbon-type surfactant encompasses any derivative of hydrocarbons. Also, for example, fluoroaliphatic surfactant in claim 17 is an optional one when combined with claim 16.

Thus, the instant invention lacks novelty.

Claims 1-55 and 57-76 are rejected under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547) in view of Rahman et al (US 5,928,836).

The instant invention further recites PGMEA as a solvent over Drage.

Rahman et al teach various solvents including the instant PGMEA at col. 4, lines 14-31.

It would have been obvious to one skilled in the art at the time of invention to employ PGMEA of Rahman with other solvent in Drage since Drage teaches employing mixtures of solvent and since use of said PGMEA in obtaining novolac solution is well known as taught by Rahman et al absent showing otherwise.

Claims 1-21, 23-62 and 64-76 are rejected under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547) in view of McCutcheon et al (US 2007/0105384 A1) or Patil et al (US 2003/0207209 A1).

The instant invention further recites UV curing over Drage.

McCutcheon et al teach UV curing in example 1. Patil et al teach use of radiation source in [0044].

It would have been obvious to one skilled in the art at the time of invention to employ UV source of McCutcheon et al or UV or visible light of Patil et al n Drage since use of any heat source in curing or drying novolac resin would be an obvious design choice and since UV light is one of well known method as taught by McCutcheon et al and Patil et al absent showing otherwise.

Claims 1-3, 8-10, 26, 28, 29, 32, 33, 36-38, 43, 44, 47 and 53-55 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Montgomery (US 6,258,514).

Montgomery teaches photoresist solution materials comprising a polymer such as novolac and a solvent such as propylene glycol monoether or ethyl lactate at col. 6, lines 31-45. Said solution inherently lowers the recited forces since the same components are used. Evaporation of solvents in making thin-film coated multi-layered lithography is taught at col. 7, lines 13-55.

Thus, the instant invention lacks novelty.

Claims 1-3, 8-14, 26, 28, 29, 32, 33, 36-38, 43-49 and 53-55 are rejected, under 35 U.S.C. 103(a) as obvious over Montgomery (US 6,258,514).

The instant invention further recites a degree (%) of reduction for viscosity and surface tension over Montgomery.

However, it would have been obvious to one skilled in the art at the time of invention to make solutions with different concentrations in order to adjust coating

properties in Montgomery, and said different concentrations would meet the instant degree (%) of reduction for viscosity and surface tension, a lower concentration would yield a higher degree (%) of reduction since it reduces interactions between polymeric molecules and it increases relaxation of polymeric molecules due to a higher salvation effect, absent showing otherwise.

Claims 1-5, 7-17, 26-29, 32-40 and 42-55 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rogler (US 5,276,126).

Rogler teaches photoresist solution materials comprising a polymer such as novolac (col. 4, lines 11-25) and a solvent such as propylene glycol alkyl ether acetate or ethyl lactate or mixtures thereof and fluoro surfactant at col. 5, lines 16-43 and in examples. Said solvents are alcohol-based since the instant alcohol-based encompasses derivatives of an alcohol. Film is taught at col. 5, line 32. Said solution inherently lowers the recited forces since the same components are used. Evaporation of solvents in making thin-film coated multi-layered lithography is taught at col. 7 and in examples.

Thus, the instant invention lacks novelty.

Claims 1, 2, 8-14, 26, 28, 29, 32, 33, 36, 37, 43-49 and 53-56 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McCutcheon et al (US 2007/0105384 A1).

McCutcheon et al teach a planarization solution and a film, and a multi-layered product thereof in examples. Example I shows PGEA and UV exposure, and would meet the instant reduction for viscosity and surface tension inherently.

Thus, the instant invention lacks novelty.

Claims 1-5, 7-17, 26-29, 32-40, 42-55, 57-61 and 63-76 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hacker et al (US 6,723,780 or 6,506,831 or 6,506,441).

Hacker et al (US'780) teach the instant novolac solution and a film thereof on a substrate in abstract and examples. Said solution inherently lowers the recited forces since the same components are used. Various solvents and mixtures thereof and a method of coating are taught at col. 4, lines 16-62. Exampless 2 and 3 show a mixture of solvents. US'831 and '441 teach the same.

Thus, the instant invention lacks novelty.

Claims 1-17, 26-29, 32-55 and 57-76 are rejected under 35 U.S.C. 103(a) as obvious over Hacker et al (US 6,723,780 or 6,506,831 or 6,506,441).

The instant invention further recites propanol over Hacker et al. However, Hacker et al teach alcohols at col. 4, line 19.

It would have been obvious to one skilled in the art at the time of invention to use propanol in Hacker et al since said propanol is one of well known alcohols absent showing otherwise.

Claims 1-55 and 57-76 are rejected under 35 U.S.C. 103(a) as obvious over Hacker et al (US 6,723,780 or 6,506,831 or 6,506,441) in view of Drage (US 5,858,547).

The instant invention further recites a mixture of an alcohol and an ethyl acetate-base solvent over Hacker et al. However, Hacker et al teach alcohols various mixtures thereof at col. 4, and use of the instant ethyl acetate-base solvent such as PGMEA in making novolac solution is well known as taught by Drage, col. 5, lines 19-25

Thus, it would have been obvious to one skilled in the art at the time of invention to use propanol in Hacker et al in combination with PGMEA of Drage since said propanol is one of well known alcohols and Hacker et al teach use of mixtures of solvent and since use of the instant ethyl acetate-base solvent such as PGMEA in making novolac solution is well known as taught by Drage absent showing otherwise.

Claims 1-3, 8-14, 26, 28, 29, 32, 33, 36, 37, 38, 43-49 and 53-56 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Prybyla (US 6,048,799)

Prybyla teaches the instant novolac solution and a method of coating thereof in example 1. Said solution inherently lowers the recited forces since the same components are used. Thus, the instant invention lacks novelty.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H. Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tae H Yoon
Primary Examiner
Art Unit 1796

THY/July 7, 2008

/Tae H Yoon/